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NOTES ON AMERICAN TORTRICIDAE.

BY COLEMAN T. ROBINSON.

The object of the present paper, and of others now in course of preparation, is to make known the species of Tortricidae inhabiting the United States. The late Dr. Brackenridge Clemens of Easton, Pa., published descriptions of nearly one hundred species, and notices of a few others are to be found in the writings of Dr. T. W. Harris, Dr. A. S. Packard Jr., Dr. Asa Fitch, H. B. Moeschler, and Mr. Francis Walker in the British Museum List.

It will be perceived that the numerous families and genera into which the Tortricidae have been divided by J. F. Stephens, S. G. Wilkinson and H. T. Stainton are taken little cognizance of in these papers. Dr. Clemens endeavored to follow the English authors mentioned above, and even added to the number of genera they had described, but his writings expressly state that it was merely for the sake of convenience, and not because of a belief that they had any foundation in nature. In the Proceedings of the Academy of Natural Sciences of Philadelphia, page 360, Aug. 1860, he says: "This group of insects is probably the most difficult, in a systematic point of view, and the least interesting family in the order of Lepidoptera. The impression I have derived from the study of it induces me to believe that it is owing chiefly to the artificial system by which it is at present interpreted, and which I have endeavored to follow in this paper. Numerous families, or so-called families, have been arbitrarily instituted on the most trivial and untenable characters, some of which are only sexual peculiarities, while ornamentation appears to be a far more important element than structure in the diagnoses by which they are characterized. Such an arrangement possesses a certain amount of convenience, inasmuch as it frequently enables the student or inquirer to limit the probable number of genera to which an insect he may wish to classify may belong. This however, is its total significance, and even in this respect it is often deficient and deceptive. This is a system of convenience and not of nature, which works on categories of structure and recognizable conceptions or ideas."

It is to be regretted that Dr. Clemens had no access to the works of continental authors, while writing upon this subject. He says in the Proceedings of the Entomological Society of Philadelphia, Vol. v, p. 138, Sept. 1865: "The only work I have that treats of the *Tortricina*,

is Mr. Wilkinson's British Tortrices, and his^{*} generic diagnoses are so peculiarly written, his tables of genera founded on a fanciful comparison of the length of the middle joint of the labial palpi with the apical joint, that the location of a specimen is very troublesome and difficult. At some subsequent day I will review what I have done in this group, as soon as I can obtain types of European genera and thus correct the numerous errors I have doubtless committed by describing new generic groups, when genera have been already created into which they could have been received, and of which I have no knowledge." These were among the last words written by Dr. Clemens on any entomological subject. His death in the prime of life, two years afterwards, deprived us forever of one of the most thorough and intelligent students of nature America has produced.

A correspondence was commenced with Dr. Clemens shortly before his death, the object of which was to cooperate with him in carrying out the intention mentioned in the paragraph quoted above, and to illustrate by plates and more detailed descriptions, the species discovered in the mean time. A library of important works on the subject has been accumulated as well as large collections of European and American specimens. I now, with much diffidence, undertake the task alone, hoping thereby to call the attention of abler systematists to the subject. Leaving the full discussion of generic values and other matters of classifications until a future period, I shall endeavor to illustrate the species thus far observed.

Messrs Francis G. Sanborn and Dr. A. S. Packard Jr. have assisted me materially by placing their collections in my hands for study and comparison.

TORTRICIDAE.

TORTRIX, Treitschke.

Tortrix rosaceana, Walker. (Plate 1. figs. 1—2 ♀, 3 ♂.)

Lozotaenia rosaceana, Harris, Inj. Insects, 1841; 3d. ed. p. 481. 1862.

Lozotaenia rosaceana, Fitch, 3d. Rep. Nox. Ins., p. 28. 1859.

Lozotaenia rosaceana, Clemens, Proc. Acad. N. S. Phil., p. 347. 1860.

Tortrix rosaceana, Walker, List, Lep. Brit. Mus., part, xxx, p. 984, 1864.

Lozotaenia rosaceana, Clemens, Proc. Ent. Soc. Phil., v., p. 136. 1865.

Palpi, head and thorax, dark reddish-brown. Antennae reddish-brown. Anterior wings cinnamon-brown, with a basal patch, central fascia and sub-apical costal spot dark reddish-brown and partially limited by slightly darker brown lines. The paler portions of the wing are irregularly striated with reddish-brown lines, three of which, originating in the costal spot, and respectively just before, in and above the internal angle. Fringes dark brown apically becoming paler below.

Posterior wings dull fuscous internally, deep ochreous beyond. Under surface of both pairs ochreous, deeper in color apically, where they are frequently speckled with brown irrorations.

Expanse, ♂ 22—25 mil.; ♀ 24—30 millimeters.

Habitat—Mass., N. Y., Pa., Fla., and Texas.

Tortrix gurgitana, n. s. (Plate iv, fig. 16.)

Head and thorax tawny brown. Palpi dark brown above, paler beneath. Anterior wings boldly arched at the base of costa, which is deeply excavate from the middle to just before the obtusely produced apices. The upper surface is irregularly striated with brown lines and all the veins distinctly covered with blackish-brown scales. Basal patch indicated by a fine line of brown scales which curving outwardly to below the cell, runs thence obliquely inwardly to internal margin. Central fascia brown, narrow from costa to the cell where it is interrupted; below the cell it spreads out broadly towards the internal angle. This fascia is distinctly limited by two lines of brown scales. Costal spot indicated by an aggregation of brown scales on the costa within and below the excavation, from which two fine lines run gradually approaching each other to internal angle. Fringes blackish-brown apically becoming paler towards internal angle.

Posterior wings pale shining fuscous internally, pale ochreous beyond.

Under surface of both pairs pale ochreous, of a deeper shade on costa and apically, where there are indications of two lines of brown scales running parallel with the internal margin.

Expanse, ♀ 26—28 mil.

Habitat.—West Virginia (Jas. Ridings), Illinois (J. C. Allen). Pennsylvania (Theo. Bunte).

This species is nearly allied to *rosaceana*, but is readily distinguished from it by the excavate costa of the primaries and the distinctness with which the veins are marked by lines of dark scales.

Tortrix purpurana. (Plate 1, fig. 4.)

Lozotaenia purpurana, Clemens, Proc. Ent. Soc. Phil., v, p. 136, 1865.

Palpi, head and thorax dark brown. Anterior wings with the usual markings nearly obsolete. In some specimens the basal patch is indicated by an indistinct curved line of glossy dark brown scales, and the central fascia by two similar, nearly parallel lines partly filled in with scales of a warmer hue. The excised portion of the wing before the apex is bordered with bright brown scales from which two lines run parallel with external margin to internal angle. Fringes concolorous.

Posterior wings dark fuscous internally, pale testaceous beyond.

Under surface of both pairs pale testaceous internally and centrally, externally, and on the costa, pale ochreous. Fringes shining blackish-brown.

Expanse, ♂ 22 mil.

Habitat.—Pennsylvania.

Tortrix lamprosana, n. s. (Plate 1, fig. 5, ♀.)

Palpi, head and thorax pale brown. Anterior wings pale cinnamon brown, with numerous scattered dark scales, with a basal patch, central fascia and sub-apical costal spot of a darker shade, the two first limited by lines of very pale scales. Outer margin of basal patch nearly straight. Central fascia broad on costa, of a nearly uniform breadth throughout to internal angle where it is slightly enlarged outwardly. Costal spot not distinctly limited, rounded internally, straight externally, ending in a point below the middle of the wing. Fringes unicolorous. Under surface of both pairs pale testaceous, with a few apical and costal irrorations.

The abdomen in the male broadly tufted, blackish.

Expanse, ♂, 21 mil.; ♀, 23—26 mil.

Habitat.—N. Y., Pa., Mass. (Sanborn.)

Tortrix limitata, n. s. (Plate 1, fig. 6, ♀.)

Palpi, head and thorax, brownish-testaceous. Anterior wings ashen brown, tinged with ferruginous beyond the central fascia. Basal patch, central fascia and costal spot dark brown, distinctly limited by lines of pale testaceous scales. Basal patch straight outwardly. Central fascia narrow on costa, increasing gradually in breadth to internal margin before internal angle. Costal spot semilunate and distinct, not continued towards internal angle as in *lamprosana*. Fringes brownish-ferruginous. Posterior wings shining fuscous internally, pale ferruginous beyond.

Under surface of both pairs pale testaceous internally, darker on costa and apically, with numerous brown irrorations.

Expanse, ♀ 21—25 mil.; ♂ 20 mil.

Habitat.—Pennsylvania.

Tortrix zapulata, n. s. (Plate 1, fig. 7 ♂.)

Head and thorax dull testaceous. Palpi brownish-ferruginous above and laterally, paler beneath. Anterior wings glossy golden-yellow, with a few scattered lines of darker scales. There are no indications of a basal patch. Central fascia brown on costa and below to the cell where it becomes nearly obsolete. Costal spot brown. Fringes unicolorous.

Posterior wings pale testaceous shaded with pale fuscous internally. Fringes whitish or very pale testaceous.

Under surface of both pairs pale testaceous, the anterior pair much clouded with brownish.

Expanse, ♂ ♀ 27—29 mil.

Habitat.—Illinois.

Tortrix sanbornana, n. s. (Plate 1, fig. 8.)

Antennae, head thorax and palpi ferruginous. Anterior wings deep glossy ferruginous. An aggregation of black scales on costa just before the middle and a larger patch on internal margin before internal angle, indicate the central fascia, which is obsolete centrally in all save one of twenty specimens examined. The sub-apical costal spot is black, semilunate. Fringes unicolorous. Posterior wings fuscous internally ochreous beyond. Abdomen above and beneath, under surface of thorax and both pairs of wings bright ochreous,

Expanse, ♂ 24, ♀ 30 millimeters.

Habitat.—Texas (Belfrage), Florida (Chas. Linden), Mass. (Sanborn), Pa. (Theo. Bunte), Putman Co. N. Y.

I take pleasure in dedicating this species to Mr. Francis G. Sanborn, who has assisted me with valuable material in this family.

Tortrix furvana, n. s. (Plate 1, fig. 9 ♀.)

Palpi and head dark ochreous. Thorax and patagia dark brown. Anterior wings shining pale lemon-yellow, with a basal patch, central fascia and large costal spot rich dark velvety brown. The spaces between the ordinary markings, on and below the cell, clouded and speckled with dark brown intermixed with dull ochreous scales, the latter predominating beyond the central fascia. Fringes pale ochreous. Posterior wings dark fuscous with pale ochreous fringes.

Under surface of anterior wings dull brown centrally, the margins yellowish; of the posterior wings, pale fuscous internally, pale yellowish beyond. Abdomen dark fuscous above, yellowish beneath.

Expanse, ♀ 24 mil.; ♂ 19 mil.

Habitat.—New York, Massachusetts, (Sanborn.)

Tortrix fractivittana. (Plate 1, fig. 10, ♂.)

Lozotaenia fractivittana, Clemens, Proc. Ent. Soc. Phil., v, p. 136. 1865.

Palpi, head and thorax ochreous. Anterior wings ochreous, clouded with dark brown scales to the central fascia, which is dark brown and much dilated outwardly below the cell. An elongate sub-apical costal spot dark brown. Fringes unicolorous. Posterior wings dark fuscous with pale ochreous fringes.

Beneath the anterior wings are brown centrally with ochreous margins; the posterior pair pale fuscous.

Expanse, ♂ 19—21 millimeters.

Habitat.—Massachusetts, (Sanborn), Virginia (Jas. Ridings.)

***Tortrix fuscolineana*.** (Plate 1, fig. 11.)

Lozotucnia fuscolineana, Clemens, Proc. Ent. Soc., v, p. 137. 1865.

Palpi, head and thorax grayish. Anterior wings grey. Basal patch dark fuscous, limited by a dark brown line angulated in the middle, and containing centrally a less distinct parallel line. Central fascia dark fuscous limited by two distinct dark brown lines. "The space exterior to the central fascia is clouded with fuscous, except a grey space above the anal angle, and varied with delicate blackish-brown lines." Posterior wings pale fuscous; fringes grey. Beneath, the wings are whitish, clouded with fuscous, and marked with numerous transverse interrupted lines.

Expanse, ♂, 18 mil.; ♀, 21 mil.

Habitat.—Virginia, Massachusetts (Packard.)

***Tortrix vesperana*.** (Plate 1, fig. 12.)

Lozotaenia vesperana, Clemens, Proc. Ent. Soc. Phil., v, p. 136. 1865.

Palpi, head and thorax brownish-ochreous. Anterior wings ochreous, with numerous irregular, transverse pale brown streaks and lines. Central fascia obsolete centrally, indicated on costa and internal margin by two ochreous brown spots, frequently containing centrally an aggregation of purplish-brown scales. Sub-apical costal spot like the preceding, sometimes obsolete. Posterior wings pale ochreous; fringes paler. Beneath, both pairs of wings ochreous, the anterior pair deepest in color.

Expanse, ♂ 21—23 mil.

Habitat.—Massachusetts (Sanborn), Texas (Belfrage), New York, and Pennsylvania.

***Tortrix pallorana*, n. s.** (Plate 1, fig. 13 ♂.)

Palpi, head and thorax pale brownish-ochreous. Anterior wings pale ochreous, without markings. Posterior wings very pale ochreous above and beneath. Under surface of anterior wings clouded with fuscous.

Expanse, 22 mil.

Habitat.—Ohio, Illinois.

***Tortrix lata*, n. s.** (Plate 1, fig. 14 ♂.)

Palpi, head and thorax bright ochreous. Anterior wings pale lemon-yellow, without markings above, clouded with fuscous beneath. Pos-

terior wings pale fuscous internally, pale yellowish or whitish beyond. Under surface of posterior wings very pale; fringes white.

Expanse, ♂ 26 mil.

Habitat.—Illinois and Pennsylvania.

Readily distinguished from *pallorana*, by its greater size, more obtuse apices and straight external margin of anterior wings.

Tortrix alisellana, n. s. (Plate 1, fig. 15.)

Palpi, head and thorax white. Anterior wings white, clouded on and beneath the disk with purple. A line of purple scales from the costa at basal third runs obliquely into the main purple shade which latter attains the costa just beyond the middle. A narrower line from above the internal angle, bowed outwardly to just below the costa, turns thence inwardly and joining the purple patch encloses a large circular white space. Posterior wings and fringes white. Under surface of both pairs pure, glossy white.

Expanse, 24 mil.

Habitat.—Ohio.

Tortrix parallela, n. s. (Plate iv, fig. 17.)

Palpi slightly exceeding the head, ferruginous brown above and beneath, pale internally. Antennae ferruginous above, testaceous beneath. Head ferruginous brown, thorax paler.

Anterior wings, pale cinnamon brown, broad, boldly arched at the base, costa nearly straight beyond, parallel with internal margin. External margin straight, anal angle produced. Basal patch narrowest on costa, limited by a dark brown line, but slightly darker than the ground color. Central fascia dark ferruginous-brown, narrow on costa, expanding on and below the disc. Costal spot dark ferruginous-brown, broad on costa, becoming gradually attenuate, ending in a point at anal angle. The spaces between the ordinary markings are streaked with irregular brown lines. Fringes concolorous, sometimes slightly darker below the apices.

Posterior wings fuscous internally, pale beyond, with a few brownish apical streaks or reticulations; beneath pale ochreous, with numerous brown reticulations apically.

Under surface of anterior wings clouded with fuscous, ochreous along costa, where the markings of the upper surface are plainly reflected.

Abdomen and anal tuft, above and beneath, pale ochreous.

Expanse, ♂ 23—25 mil.

Habitat.—Putnam Co. N. Y., Philadelphia, (Bunte.)

This is a larger, broader species than *T. vesperana*, and the distinctness of all the markings readily distinguish it.

Tortrix grisea, n. s. (Plate iv, fig. 18, ♀.)

Palpi, head and thorax dark fuscous above, the palpi pale testaceous beneath.

Anterior wings grey, irregularly clouded with fuscous, with a few dark brown irrorations on costa at base, and along external margin. Central fascia blackish-brown, distinct on costa; indistinct, interrupted, almost obsolete on and below the disc. Beyond, a blackish-brown, semilunate costal spot. Fringes fuscous.

Posterior wings shining fuscous; fringes whitish.

Undersurface of anterior wings pale fuscous; of the posterior wings, very pale testaceous.

Expanse, ♀ 27 mil.

Habitat.—Ohio.

Tortrix fumosa, n. s. (Plate iv, fig. 19, ♀.)

Head and thorax dusky ochreous. Palpi dull ochreous touched with fuscous. Anterior wings dull ochreous. Basal patch indistinctly indicated by an improminent smoky brown cloud on and above internal margin at base. Central fascia smoky brown, indistinctly limited, more or less interrupted on the disc spreading out broadly below to internal margin. An elongated semilunate costal spot smoky brown. In some specimens there are a few faint reticulations beyond the central fascia. Fringes smoky brown, paler at internal angle.

Posterior wings very pale fuscous internally testaceous beyond, margined with pale ochreous.

Under surface of anterior wings bright ochreous; fringes fuscous. Posterior pair whitish internally, bright ochreous apically.

Expanse, ♀ 26—28 mil.

Habitat.—Ohio.

Tortrix nigridia, n. s. (Plate iv, fig. 20, ♀.)

Head and thorax dark fuscous; palpi fuscous. Anterior wings dark shining grey, with numerous brown patches and spots containing aggregations of blackish scales. The usual pattern of ornamentation is observable, but both basal patch and central fascia are very irregular in outline and coalesce below the middle. Apical spot semilunate, distinct. Below its outer half an elongate brown patch stretches to anal angle. This patch is filled in with blackish scales between the veins. A row of brown spots containing central blackish scales beyond, along external margin between the veins. Fringes dark fuscous.

Posterior wings and fringes dark fuscous.

Under surface of anterior wings fuscous, with a few darker costal and apical irrorations; of posterior pair whitish testaceous, mottled with fuscous beyond the middle.

Expanse, ♂ 22—24 mil.; ♀ 27 mil.

Habitat.—Ohio, Pa. and Mass.

Tortrix Pettitana, n. s. (Plate iv, figs. 22—23 ♀, 21 ♂.)

Palpi pale yellow above, ochreous or brownish ochreous beneath. Head and thorax above pale lemon-yellow, sometimes of a deeper shade.

Anterior wings very pale yellow or lemon-yellow, shining. Costa in the male with two aggregations of brownish ochreous scales at basal and apical third.

Posterior wings and fringes pure shining white.

Under surface of both pairs, and abdomen, above and beneath, pure white.

Expanse, ♀ 23—28 mil.; ♂ 22 mil.

Habitat, Canada West, (Johnson Pettit); Ohio, Illinois.

This is a very variable species. Two specimens from Illinois, which I saw in Dr. Herrich-Schaffer's collection at Ratisbon, Nov. 1867, differed somewhat from the specimens here figured and described, and were the subject of the following note made on the spot: Head, thorax and palpi above, clear lemon-yellow, the latter brownish-ochreous laterally and beneath. Upper surface of primaries in both sexes lemon-yellow; the costa covered with brownish-ochreous scales to one third from base. Hind wings above and under surface of both pairs brilliant white.

Expanse, ♂ 23 mil., ♀ 29 mil.

The specimens figured were received from Mr. Johnson Pettit of Grimsby, C. W., with other interesting material, and I take pleasure in dedicating the species to him.

Tortrix breviornatana. (Plate iv, fig. 24 ♀, 25 ♂.)

Leptoris breviornatana, Clemens, Proc. Ent. Soc. Phil., v, p. 140, 1865.

Head and thorax brown. Palpi three times the length of the head, probosciform, dark brown.

Anterior wings tawny-yellow or brown, with all the veins distinct, brown. An oblique pale brown or darker shade extends from the costa at basal third to beyond the middle. This shade is least prominent on the disc, where it is sometimes obsolete. A patch of a similar shade on costa before the apex. There is a brown shade along external margin; fringes of the general color.

Posterior wings pale testaceous with brown irrorations centrally and apically.

Under surface of both pairs pale testaceous centrally, pale ochreous with darker irrorations beyond.

Expanse, ♂ 20 mil., ♀ 21—3 mil.

Habitat.—Mass. (Sanborn), Canada West (Pettit), Putnam Co., N. Y.

In the produced apices, general form and coloration this species closely resembles the European *Teras contaminana* (*Dictyopteryx contaminana*, Stephens); however the fringes of *contaminana* are invariably pale or white below the apices, and veins 7 and 8 arise separate from each other and end in the costa, whilst in the present species they arise on a common stalk, vein 7 ending in the external margin and vein 8 in the costa, thus enclosing the apex, as in several other species in this genus

Tortrix caryae, n. s. (Plate iv, fig. 26.)

Palpi long, extending beyond the head, brownish-ochreous. Head and thorax brownish-ochreous.

Anterior wings pale ochreous, uniformly and distinctly reticulated with reddish-brown, with a prominent aggregation of scales of a similar color forming an irregular spot on the discal cross vein containing a few blackish scales centrally.

Posterior wings and fringes above and beneath pale testaceous.

Expanse, ♂ 20 mil.; ♀ 22 mil.

Habitat.—Illinois (J. C. Allen), Pennsylvania. (T. Bunte).

The distinct spot at the end of the disc readily distinguishes this species from all others of the genus.

Tortrix furcatana. (Plate iv, fig. 27 ♀.)

Dichelia furcatana, Walker, Brit. Mus. List, part xxviii, p. 319 1863.

Thorax, head and palpi yellow, the apical joint of the latter tinged with purple.

Anterior wings bright yellow with numerous purple reticulations. A line of bright purple scales beginning on the costa before the middle extends across the disc, and throwing out an oblique finer line to internal margin at basal third, runs obliquely outwardly to internal angle where it is extended into a spot. A similar line from costa at apical third curves slightly outwardly to one third below and thence boldly outwardly along external margin joining the spot at internal angle. Fringes pale yellow.

Abdomen, posterior wings and fringes above and beneath pearly-white. Under surface of anterior wings white.

Expanse, ♂ 13—17 mil.; ♀ 29—22 mil.

Habitat.—Pennsylvania (T. Bunte).

Tortrix rileyana, Grote. (Plate iv, fig. 28 ♀.)

Tortrix rileyana, Grote, Trans. Am. Ent. Soc. II, p. 121, 1868.

Tortrix melaleucana. (Plate iv, fig. 29.)

Lophoderus melaleucanus, Walker, Brit. Mus. List, Part 28, p. 335, 1863.

Ptycholoma? semifusca, Clemens, Proc. Ent. Soc. Phil., III, p. 519, 1864.

Palpi dull ochreous, hardly exceeding the head. Head brownish-ochreous above, paler in front. Thorax and patagia dark brown.

Anterior wings pale testaceous clouded with ochreous except below costa. A broad dark brown shade containing central aggregations of shining blackish scales, covers the internal region of the wing from base to before internal angle. A sub-apical costal spot dark brown, with central shining blackish scales. Costal fold in the ♂ extending two-thirds the length of the wing, dark brown at base.

Posterior wings pale fuscous internally, beyond whitish.

Under surface of both pairs and fringes white, the markings of the upper surface reflected on the anterior pair.

Expanse, ♂ 19—21 mil.; ♀ 23—25 mil.

Habitat.—Virginia, Pennsylvania, Maine.

Tortrix puritana. (Plate v, fig. 30.)

Croesia? unifasciana, Clemens, Proc. Ent. Soc. Phil., III, p. 516, 1864.

Palpi long, probosciform, deep yellow above and beneath, laterally deep red. Head, thorax and patagia deep yellow above, the latter red in front. Anterior wings deep yellow, with a very oblique central fascia, a costal spot beyond the middle, and a similar spot beneath, near the middle of external margin, deep red much filled in with shining purple scales. Costa deep red from base to central fascia. Fringes yellow.

Posterior wings and fringes pale fuscous tinged with yellow apically.

Under surface of both pairs yellow; the anterior pair clouded with fuscous.

Expanse, ♂ 18 mil.; ♀ 20 mil.

Habitat.—Mass., Illinois.

The name *unifasciana* under which this species was described by Mr. Clemens having been already used for a European species by Duponchel, I have felt obliged to change it as above.

Tortrix violaceana, n. s. (Plate v, fig. 31.)

Palpi deep red, probosciform, greatly exceeding the head. Head and thorax red.

Anterior wings shining yellow at the base, beyond to just before the apices deep purplish or violaceous. Apices and fringes ferruginous.

Posterior wings fuscous; fringes paler. Under surface of posterior wings white, of anterior pair dark fuscous, tinged with ferruginous along costa and external margin.

Expanse, 21—24 mil.

Habitat.—N. Y., Mass. (Sanborn).

This species resembles in general appearance the European *T. ministrana*, Linn. (*T. ferrugana*, Hüb. fig. 56) but is readily distinguished by its narrower anterior wings, more oblique external margin and very long palpi, which in *ministrana* but slightly exceed the head.

Tortrix algidana, Moeschler. (Plate v, fig. 32.)

Tortrix algidana, Moeschler, Wiener Ent. Monatschrift, vi, p. 138, 1862.

Tortrix gelidana, Moeschler, Wien. Ent. Monatsch. vi, pl. 1, figs. 9—10, 1862.

Palpi brown, slightly exceeding the head, third joint depending. Head and thorax brown.

Anterior wings olivaceous yellowish or brown, with a reddish-brown patch on internal margin at base, a very oblique central fascia and a costal spot of a similar color.

Posterior wings fuscous.

Under surface of both pairs fuscous, the anterior pair touched with yellow on costa. Fringes pale fuscous.

Expanse, ♂ 19—21 mil.

Habitat.—Labrador (Moeschler), Mt. Washington (Sanborn).

This species is known generally in the Eastern States under the name of *gelidana*, but it will be seen from the citations given above that it was described as *algidana* and the name on the plate is undoubtedly an error.

Tortrix reticulatana. (Plate v, fig. 33, ♀ 34, ♂.)

Crocisia? reticulatana, Clemens, Proc. Acad. N. S. Phil., p. 353, 1860.

Texas subauratana, Walker, Brit. Mus. List, Part 23, p. 28, 1863.

Palpi red, very long, proboscoidiform. Head and thorax yellow above.

Anterior wings yellow finely reticulated with orange. Costa at base tinged with purple. Central fascia purple, commencing in a spot on costa before the middle and ending in the apex of a large triangular spot of the same hue on internal margin. The large purple costal spot throws out a line which is forked just below it, one branch running obliquely inwardly to the triangular spot on internal margin, the other outwardly to before internal angle.

Posterior wings and fringes very pale yellow.

Under surface of both pairs pale straw color, the anterior pair slightly reflecting the hue and markings of the upper surface.

Expanse, ♂ 17—19 mil.; ♀ 20—22 mil.

Habitat.—Putnam Co. N. Y., West Va. (Ridings), Pa.

This species varies greatly, the reticulations being sometimes obsolete and the ordinary markings partially so. I consider the specimens figured and numbered 35 and 36 to be varieties of this species.

***Tortrix sulfureana*.** (Plate v, figs. 37—40.)

Croesia? sulfureana, Clemens, Proc. Ac. N. S. Phil., p. 353, 1860.

Croesia? fulvroseana, Clemens, Proc. Ent. Soc. Phil., III, p. 516, 1864.

Croesia? virginiana, Clemens, Proc. Ent. Soc. Phil., III, p. 517, 1864.

Croesia? gallivorana, Clemens, Proc. Ent. Soc. Phil., III, p. 517, 1864.

Conchylis gratana, Walker, Brit. Mus. List, part 28, p. 359, 1863.

Palpi long, exceeding the head, yellow above, deep red laterally and beneath. Head and thorax yellow above tinged with red or purple at the sides. Patagia red in front, yellow beyond.

Anterior wings golden-yellow finely reticulated with red or purplish. Sometimes the reticulations are wanting (fig. 40). Costa tinged with purple at base. A purple spot on the middle of internal margin throws out two diverging lines, one of which attains the costa at basal third the other ending just below a similarly colored subapical costal spot. A broad purple stripe along external margin. Fringes yellow.

Posterior wings above and beneath varying from pale yellowish fuscous to dark fuscous or blackish.

Under surface of anterior wings clouded centrally with fuscous; the margins paler, sometimes yellow.

Expanse, ♂ 14—17 mil. ♀ 17—19 mil.

Habitat.—Mass., N. Y., Pa., West Va., Ohio, Illinois, Florida, Texas.

Dr. Clemens, (Proc. Ent. Soc., p. 518, 1867.) after describing some of the forms which I have united above, says: "I have described these various forms as distinct for the reason that the eye detects differences in them, without however believing that they are all specifically distinct."

An examination of Dr. Clemens' original types and of nearly one hundred specimens from the localities cited above, would seem to prove that this is a very variable species and that the intermediate forms are so graduated that it is not possible to limit the varieties.

***Tortrix albicomana*.** (Plate v, figs. 41—42.)

Xanthosetia albicomana, Clemens, Proc. Ent. Soc. Phil., v, p. 137, 1865.

Palpi, head and thorax pale yellow.

Anterior wings bright lemon-yellow, all the central portions clouded with purple, the ground color being only exposed at base below costa,

and along external margin. A small patch of lustrous scales on costa at base. A broad oblique line of lustrous scales commencing at basal third ends at the middle of internal margin, and a similar parallel line commencing at middle of costa ends at internal angle. A few lustrous scales, along external margin and parallel with it. Fringes pale yellow.

Posterior wings whitish or pale fuscous above and beneath.

Under surface of anterior wings clouded with fuscous centrally, yellowish beyond.

Expanse, 15—17 mil.

Habitat.—Mass., N. Y., Pa., West. Va., Ohio., Texas.

Allied to *Tortrix bergmanniana*, Linn. of Europe, with which it agrees perfectly in structure.

Tortrix confusana, n. s. (Plate v, fig. 43.)

Palpi very long, pale yellow, slightly tinged with ochreous externally. Head, thorax and patagia pale yellow.

Anterior wings pale lemon-yellow. The costa is tinged with bright ochreous at base, and a very broad shade of the same hue extends along the central and lower portions of the wing to beyond the middle.

Posterior wings shining pale testaceous, almost white, slightly tinged with fuscous internally.

Abdomen above and beneath pale yellow.

Under surface of both pairs of wings pale testaceous; the anterior pair much clouded with fuscous except along costa and external margin.

Expanse, 20 mil.

Habitat.—Pennsylvania. (Bunte).

Tortrix irrorea, n. s. (Plate v, fig. 44.)

Palpi very long, blackish-brown. Head and thorax yellow above, tinged laterally with dark brown.

Anterior wings yellow, speckled with dark brown irrorations, which are most numerous and prominent on and beyond the middle. Costa dark brown at base, with an aggregation of irrorations at apical third forming an improminent spot. A distinct large dark brown dot below the costa at basal third, and a patch of the same hue extending from beneath the cell obliquely outwardly to the internal margin indicate the central fascia. The costal spot and patch on internal margin are followed by a few paler, brighter brown scales. Fringes yellow.

Posterior wings whitish testaceous with numerous fuscous irrorations.

Under surface of both pairs pale testaceous closely covered with pale fuscous irrorations.

Abdomen pale testaceous above and beneath.

Expanse, 20 mil.

Habitat.—Brewsters, Putnam Co. N. Y.

Tortrix paludana, n. s. (Plate vi, fig. 45 ♂.)

Palpi reddish-brown, short, the third joint extending beyond the head. Head and thorax reddish-brown above.

Anterior wings reddish-brown, much clouded with fuscous beyond the middle. A dark brown patch on the middle of costa and a smaller one on the disk below it indicate the central fascia. A large dark brown sub-apical patch is continued as a broad fuscous shade to internal angle. Fringes pale.

Posterior wings very dark fuscous above; pale testaceous beneath tinged with fuscous internally. Fringes pale testaceous. Abdomen fuscous above, pale testaceous beneath.

Under surface of anterior wings entirely clouded with fuscous, giving in some lights a purple reflection.

Expanse, ♂ 20 mil., ♀ 23 mil.

Habitat.—Pennsylvania. (Bunte), Putnam Co. N. Y.

Tortrix humerosana. (Plate vi, fig. 46 ♂.)

Amorbia humerosana, Clemens, Proc. Acad. N. S. Phila., p. 352. 1860.

Palpi long, gray above, brownish fuscous laterally, whitish internally. Head and thorax gray. Abdomen above and beneath whitish testaceous.

Anterior wings pale gray with numerous small tufts of blackish scales. A large triangular dark gray shade commences narrowly on costa at basal third, becomes gradually broader towards the middle and narrows again to the apex. A narrow ferruginous shade at base extends along internal margin to beyond the middle and there spreads diffusely upwardly mingling with the inverted apex of the triangular dark gray shade. Fringes pale gray.

Posterior wings above fuscous sometimes with a slight ferruginous tinge; beneath pale testaceous with fuscous irrorations apically.

Under surface of anterior pair clouded centrally with fuscous, pale ferruginous reticulate with fuscous beyond.

Expanse, ♂ 26—28 mil.; ♀ 30 mil.

Habitat.—N. Y., Mass., Canada West, (Pettit), Pa.

Tortrix cerasivorana. (Plate vi, fig. 47 ♂.)

Lozotaenia cerasivorana, Fitch, Nox. Ins. N. Y., p. 64, pl. 2, fig. 3, 1859.

Head, palpi and antennae pale ochreous. Thorax bright ferruginous.

Anterior wings bright ferruginous with numerous irregular, broken transverse streaks of a dull leaden hue. A dark ferruginous spot on

costa at basal third and an irregular patch of the same hue on the disc indicate the central fascia. There is a subapical costal spot of the same hue.

Posterior wings and abdomen above and beneath, and under surface of anterior wings bright ochreous.

Expanse. ♂ 17—20 mil.

Habitat.—N. Y. (Fitch); Mass. (Sanborn).

I give on plate vi, fig. 48 a representation of the male of *Tortrix alisellana*, described on a previous page of this paper from a female specimen which is represented on plate i, fig. 15. Both specimens are from Ohio.

Tortrix minuta. n. s. (Plate vi, fig. 49.)

Palpi bright ferruginous above and laterally, whitish beneath. Head and thorax ferruginous.

Anterior wings bright ferruginous, very thickly covered with shining leaden-hued streaks and markings which give the surface a shining appearance.

Posterior wings, fringes and abdomen above, as well as the entire under surface, pale testaceous.

Expanse. 15 mil.

Habitat.—Texas, (Belfrage).

Tortrix cana. n. s. (Plate vi, fig. 50.)

Palpi long, slightly depending, gray. Thorax gray; patagia dark fuscous.

Anterior wings gray, with a short line of blackish scales extending from the costa near the base to the fold. A well marked central dark fuscous fascia interrupted on the disc, limited very distinctly internally by black scales. The sub-apical costal spot consists of a dark fuscous patch with a few black scales on its inner margin.

Posterior wings and under surface of both pairs fuscous.

Expanse, 20 mil.

Habitat.—Pennsylvania, (Theo. Bunte.)

Tortrix discopunctana. (Plate vi, fig 51.)

Coelostathma discopunctana, Clemens, Proc. Acad. N. S. Phil., p. 355, 1860.

Palpi and head pure white above, testaceous beneath. Thorax pale fawn color.

Anterior wings pale fawn color, with a broad central fascia of a darker shade, following which is a very distinct black dot on the disc. The apical spot is dark fawn color, and is continued along the external margin to internal angle.

Posterior wings and fringes, above and beneath, pale testaceous. Undersurface of anterior pair pale fawn color partially clouded with fuscous.

Expanse, 14—16 mil.

Habitat.—Mass., N. Y., Pa.

***Tortrix peritana*.** (Plate vi, fig. 52.)

Smicrotes peritana, Clemens, Proc. Acad. N. S. Phil., p. 356, 1860.

Palpi, head and thorax pale brownish-ochreous.

Anterior wings pale brownish-ochreous, with a narrow central fascia and rounded costal spot, brown. A fine brown line runs from the costal spot to external angle.

Posterior wings and fringes, above and beneath, pale testaceous. Undersurface of anterior wings fuscous; fringes brownish-ochreous.

Expanse, 10—14 mil.

Habitat.—N. Y., Pa.

***Tortrix flaccidana*, n. s.** (Plate vi, fig. 53.)

Palpi, head and thorax pale ochreous.

Anterior wings shining pale yellow, almost entirely covered with pale olivaceous scales, so that the yellow ground color is only evident just below costa at base, in two small costal spots at and beyond the middle, and in a similar elongate spot on the disc below the two last mentioned. There are three brown dots on the costa near the apex, which is also tinged with brown.

Posterior wings fuscous above, tinged apically with ferruginous; beneath tinged with fuscous internally, pale testaceous beyond. Fringes whitish.

Undersurface of anterior wings fuscous except the costa, which is pale testaceous.

Expanse, ♂ 20 mil.

Habitat.—Texas, (Belfrage)

***Tortrix sentana*.** (Plate vi, fig. 54 ♀.)

Platynota sentana, Clemens, Proc. Acad. N. S. Phil., p. 348, 1860.

Head, thorax and palpi dark gray, the latter exceeding the head twice its breadth.

Anterior wings dark gray, with a brownish tinge on and below costa at base and on internal margin beyond the middle. Basal patch indicated by a few tufts of raised dark brown scales on and below costa. Central fascia distinct, dark brown, narrowest on costa, and limited by two lines of elevated blackish-brown scales. Beyond the central fascia three lines of elevated blackish-brown scales commence on the costa.

The first runs obliquely outwardly and only attains the middle of the wing. The other two lines run nearly parallel to the external margin and end respectively before and in the internal angle,

Posterior wings dark fuscous above; fringes blackish. Undersurface of both pairs dark fuscous with numerous blackish streaks and irrorations.

Expanse, ♂ 16, ♀ 20 mil.

Habitat.—Mass., N. Y., Pa.

***Tortrix flavedana*.** (Plate vi, fig. 55 ♂.)

Platynota flavedana, Clemens, Proc. Acad. N. S. Phil., p. 348, 1860.

Head, thorax and palpi reddish or blackish-brown.

Anterior wings reddish-brown at base, ochreous along external margin; the intermediate portions of the wing blackish with a few tufts of elevated scales.

Posterior wings internally pale olivaceous, ferruginous beyond.

Undersurface of both pairs rusty ferruginous.

Expanse, 13—16 mil.

Habitat.—Mass., Putnam Co. N. Y., Pa.

***Tortrix laterana*.** n. s. (Plate vi, fig. 56 ♀.)

Palpi exceeding the head twice its breadth, dark brown. Head and thorax deep ferruginous.

Anterior wings ferruginous to the central fascia, tinged with ochreous beyond. Basal patch concolorous, indicated by a broken line of raised scales. Central fascia distinctly limited by two lines of elevated blackish scales filled in with blackish above and very deep ferruginous below the middle. Costal spot limited internally by a line of blackish scales which is continued to the middle of the wing; a line of dark elevated scales along external margin. Fringes ferruginous.

Posterior wings and abdomen above, and undersurface of both pairs deep ferruginous. Fringes dark fuscous.

Expanse, 17—18 mil.

Habitat.—Pennsylvania (Bunte).

***Tortrix incertana*,** Clemens. (Plate vi, fig. 57 ♂, 58 ♀.)

Tortrix incertana, Clemens, Proc. Ent. Soc. Phil., v, p. 138, 1865.

Palpi ochreous or brownish-ochreous except the minute third joint which is blackish. Head and thorax ochreous or brownish-ochreous.

Anterior wings pure pale reddish-brown within the central fascia, except on internal margin, which is broadly covered at base with blackish brown scales forming a rather prominent irregular spot followed by an aggregation of intermixed pale ochreous and blackish scales to the fas-

cia. Central fascia broad, distinctly dark brown, sometimes reddish-brown. The sub-apical costal spot is dark brown and separated from the central fascia by a reddish-brown shade. The remaining outer portion of the wing pale ochreous except a testaceous-brown spot above the anal angle. Fringes dark ochreous.

Posterior wings fuscous above, testaceous beneath. Fringes pale testaceous. Under surface of anterior wings pale testaceous, much clouded centrally with dark fuscous.

Expanse, ♂ 15, ♀ 19 mil.

Habitat.—Mass., N. Y., Pa., Ohio.

***Tortrix lutosana*.** (Plate vi, fig. 59 ♂.)

Tortrix lutosana, Clemens, Proc. Ent. Soc. Phil., v, p. 138, 1865.

Palpi slightly exceeding the head, brownish-ochreous laterally, pale ochreous internally. Head and thorax brownish-ochreous.

Anterior wings pale ochreous, darker on costa at base. Basal patch large, dark brown, not quite attaining the costa. Central fascia dark brown to the middle of the wing, reddish-brown beyond, throwing out a hooklet inwardly below the cell, which curving upwardly nearly encloses a pale ochreous spot. Sub-apical costal spot dark brown, semi-lunate, connected by a paler streak with internal angle. There are a few dark ochreous irrorations in the paler portion of the wing. Fringes dark ochreous.

Posterior wings above fuscous with pale testaceous fringes; beneath pale testaceous, with numerous apical brown irrorations.

Under surface of anterior wings dark fuscous, with a small yellow spot on the middle of costa, and a similar spot at apex.

Expanse, ♂ 17 mil.

Habitat.—Mass., N. Y., Pa.

I have now described and figured all the North American species known to me of the genus *Tortrix* as limited by the late authors of continental Europe. No attempt has been made in this paper toward a systematic arrangement, as some of the species figured are represented by single specimens which would be rendered unfit for the engraver by any examination of the details of their structure. I hope that the descriptions with the aid of the plates will render the preservation of such specimens unnecessary.

TERAS Treitschke.

This very variable genus does not appear to be well represented on this continent. Of the few specimens in collections to which I have had access a large proportion resemble closely varieties of European

species, and some may prove not to be indigenous to this country. In all cases where I have not found them absolutely indetical with European specimens or figures new names are given, as I consider it preferable to increase the synonymy rather than leave the varieties undescribed or wrongly referred.

***Teras flavivittana*.** (Plate vii, figs. 60—61.)

Peronea flavivittana Clemens, Proc. Ent. Soc. Phil., III, p. 516, 1864.

Head, thorax and palpi testaceous or pale ochreous, the latter fuscous externally.

Anterior wings dark brown with pale markings, with two tufts of elevated scales, the first, black or blackish-brown, just below the middle of the wing at basal third, the second, on the disc, pale brown or brownish-ochreous. Fig. 60 is broadly streaked along the internal margin with pale ochreous and apically there are some slight streaks of the same hue. Fig. 61 is of a uniform darker brown broadly marked with pale brown below the discal tuft to external margin.

Posterior wings above and under surface of both pairs pale shining fuscous.

Expanse, 18—19 mil.

Habitat.—N. Y., Mass. (Jas. Ridings).

***Teras perspicuana*, n. s.** (Plate vii, fig. 62.)

Palpi and head pale gray, thorax white.

Anterior wings gray with a large black basal patch extending from costa to the middle of the wing, and a broad pale yellow stripe along internal margin from base to internal angle.

Posterior wings above, and undersurface of both pairs shining pale fuscous.

Expanse, 17 mil.

Habitat.—Pennsylvania.

This species has a superficial resemblance to the var. *scabrana* Hb. of *T. hastiana* Linn., but is a smaller species and the attenuate third joint of the palpi is not enclosed by the long scales of the second as in the European species.

***Teras hastiana*, Linn.** (Plate vii, fig. 63.)

Var. *divisana* Hübner.

Palpi, head and thorax dark brown. Anterior wings chocolate brown, with a broad white stripe running from the base just below and parallel to the costa and ending attenuately at the apex. The general hue is darkest just beneath the stripe. Hind wings above and beneath pale fuscous, the fore wings dark fuscous beneath.

Expanse, 21 mil.

Habitat.—Europe, Pa., Mass. (Sanborn).

***Teras maculidorsana*.** (Plate vii, fig. 64.)

Cnephasia † *maculidorsana* Clemens, Proc. Ent. Soc. Phil., III, p. 516, 1864.

Palpi, head and thorax dark gray. Anterior wings ashen gray. A large dark gray patch on internal margin near the base is prominently dark brown. A reddish-brown central fascia, limited internally by a line of dark dots, runs obliquely from the costa at basal third to internal margin. Beyond the fascia the wing is broadly clouded with dark gray on and below the costa. A central reddish-brown shade in the terminal portion of the wing is followed by a subterminal line of dark dots. Fringes gray. Posterior wings shining fuscous. Fringes pale, whitish.

Expanse, 20 mil.

Habitat.—Pa., (Bunte), Maine, (A. S. Packard Jr.).

This and the following may be varieties of the European *T. hastiana* Linn. (*scabrana* Hb.).

***Teras inana*, n. s.** (Plate vii, fig. 65.)

Palpi, head and thorax pale grayish-brown. Basal third of anterior wings pale grayish-brown enclosing a patch of raised dark brown scales near internal margin. Beyond the wing is pale brown, at the edge of which shade on the disc is a raised patch of scales of the same hue. Posterior wings above, and under surface of both pairs shining fuscous.

Expanse, 19 mil.

Habitat.—Mass., N. Y.

***Teras viburnana*.** (Plate vii, fig. 66.)

Peronea viburnana, Clemens, Proc. Ac. N. S. Phil., p. 347, 1860.

Palpi brownish-gray. Head dark brownish. Thorax and patagia dark brown in front, brownish-ochreous beyond. Anterior wings grayish tinged with ochreous. Costa dark reddish-brown at base. A large reddish-brown patch commencing before the middle is straightly and obliquely limited internally where it is broadest, extending below the disc; becoming gradually narrow it ends in the apex. The paler portions contain numerous small tufts of blackish scales and there is a terminal line of the same hue. Hind wings and under-surface shining fuscous.

Expanse, 20 mil.

Habitat.—Pennsylvania (T. Bunte).

***Teras nigrolinea*, n. s.** (Plate vii, fig. 67.)

Palpi, head and thorax pale ashen gray. Forewings gray with a long-

itudinal black line extending from the base through the middle to just before external margin at one third below the apex. A raised tuft of black scales on the black line at basal third and a similar one at outer third. A small black tuft on the disk above the line and a similar one beneath near external margin. The general surface of the wing covered with tufts of gray scales.

Posterior wings shining fuscous, paler beneath.

Expanse, ♂ 24; ♀ 26 mil.

Habitat.—Canada West, (J. Pettit).

In two of the specimens received from Mr. Johnson Pettit of Grimsby, C. W., the black tufts are obsolete and the line nearly so except on the center of the disc.

Teras placidana, n. s. (Plate vii, fig. 68.)

Palpi, head and thorax very pale ashen-gray. Anterior wings pale ashen-gray, with two minute raised tufts of black scales at basal third, respectively just above and below the middle of the wing. Beyond, an oblique line of raised gray scales arises on costa before the middle and ends on internal margin just beyond the middle. This line contains a few black scales, an aggregation of which on the disc forms a distinct dot. The outer portion of the wing contains a few black irrorations which are most prominent along the costa and near the external margin. Fringes concolorous. Posterior wings pale shining fuscous with very pale fringes.

Under surface of anterior pair dark fuscous, of posterior pair whitish.

Expanse, ♀ 19 mil.

Habitat.—Pennsylvania, (Theo. Bunte).

Teras trisignana, n. s. (Plate vii, fig. 69 ♀.)

Palpi, head and thorax white. Anterior wings white, slightly roughened transversely with dots and lines of elevated scales. The costa is dotted with aggregations of blackish scales, two of which, larger than the rest, just before and beyond the middle, with a larger irregular spot beneath them on the disc, enclose a triangular space. Fringes white.

Posterior wings above and beneath glossy fuscous. Under-surface of anterior wings fuscous with whitish margins. Abdomen white above and beneath.

Expanse, ♀ 18 mil.

Habitat.—Western Virginia, (Jas Ridings).

Teras semiannula, n. s. (Plate vii, fig. 70 ♀.)

Palpi, head and thorax gray, the latter tinged with brown. Anterior wings with numerous scattered reddish-brown scales. A large ir-

regular semicircle of dark brown scales encloses a costal space of the general hue. Fringes pale reddish-brown.

Posterior wings dark fuscous above, beneath paler. Fore-wings dark fuscous beneath. Abdomen dark fuscous above, beneath whitish.

Expanse, ♀ 16 mil.

Habitat.—Pennsylvania.

Teras deflectana, n. s. (Plate vii, fig. 71 ♀.)

Palpi, head and thorax pure white. Anterior wings white, slightly tinged with ochreous on and beyond the middle. The costa contains two brown dots near the base; beyond it is bent inwardly to apical third and this portion is broadly bordered with dark brown, except in the center where it is paler. Fringes ochreous.

Posterior wings fuscous. Fringes pale.

Expanse, ♀ 17 mil.

Habitat.—Pennsylvania, (T. Bunte).

Teras gallicolana. (Plate vii, fig. 72 ♀.)

Peronea gallicolana Clemens, Proc. Ent. Soc. Phil., III, p. 516, 1864.

Head, thorax and palpi dark brown or blackish, the latter paler beneath. Anterior wings greyish with an ochreous tinge most prominent apically. A black dot on the fold near the base, and a broad, irregularly margined, blackish patch on the middle third of the costa, attaining the middle of the disc below. Posterior wings dark fuscous. Fringes pale.

Expanse, 17 mil.

Habitat.—Mass., Illinois.

Teras brewsteriana n. s. (Plate vii, fig. 73 ♀.)

Palpi, head and thorax dark gray or blackish. Anterior wings dark gray with a tuft of raised scales of a similar color on the center of the disc. This tuft is distinctly margined outwardly with reddish-brown scales. Fringes gray.

Posterior wings and fringes glossy white, hyaline.

Expanse, 23 mil.

Habitat.—Putnam Co., N. Y.

Teras celiana n. s. (Plate vii, fig. 74.)

Palpi, head and thorax dark, blackish-brown; patagia tinged with reddish-brown. Anterior wings rich dark chocolate-brown slightly mottled with dark gray. There is a tuft of pale ochreous scales on the center of the disk, and beyond, in the apical portion of the wing a few scattered similarly colored raised scales. Fringes gray.

Posterior wings and fringes very pale fuscous.

Expanse, 25 mil.

Habitat.—New York, Massachusetts, (Sanborn).

CONCHYLIS Treitschke.

Conchylis agassizii, n. s. (Plate viii, fig. 75.)

Head and palpi white, the latter slightly tinged laterally with brown, Thorax brownish-olivaceous; patagia pure white.

Anterior wings dark olivaceous-brown with lustreless silvery white markings. Beyond a narrow white costal spot a larger patch of white scales rests on the middle of costa and runs thence very obliquely outwardly half way to external margin, where it is separated from a similar spot which runs obliquely to costa just before the apex of the wing. These spots enclose a circular white dot on costa. An irregular white stripe commencing at the base runs irregularly through the central portion of the wing to just before external margin; it is narrow at its origin, constricted at basal third and again beyond the middle, where it curves down towards internal margin. On external margin above the end of the stripe a white spot with a few dark central scales, and a small white spot or dot on internal angle. The internal margin is narrowly white to end including a white patch before the middle. Under a lens the markings are found to be margined narrowly by blackish scales. Fringes white except a narrow fuscous tinge just below the middle.

Posterior wings fuscous. Fringes white.

Expanse, ♂ 23 mil.

Habitat.—Waco Co., Texas "May 17th." (G. W. Belfrage).

Conchylis quinquemaculana, n. s. (Plate viii, fig. 76.)

Palpi, head and thorax pale brownish-ochreous; patagia tinged with silvery.

Anterior wings dark brownish-ochreous with five shining silvery-white maculations. The first spot, at the base, is small and does not attain either margin; the second commencing narrowly on costa before the middle, is broadest centrally and narrowest on internal margin running entirely across the wing. The third spot large, rounded, rests on costa beyond the middle, narrowly separated from the fourth which is smaller and placed just within internal angle. The fifth spot is small nearly round, and is placed on the costa just before the apex. All these spots are narrowly margined with dark brown scales, and the veins of the wing are similarly marked beyond the third and fourth spots. Fringes pale fuscous, the ends of the scales blackish.

Posterior wings very pale shining fuscous.

Expanse, 20 mil.

Habitat—Pennsylvania (Theo. Bunte).

Conchylis ridingsana, n. s. (Plate viii, fig. 77 ♂.)

Palpi, head and thorax pale ochreous; patagia touched with silvery.

Anterior wings pale ochreous with shining silvery-white markings. A narrow silvery stripe runs from the base along internal margin to internal angle. A broader silvery stripe commencing at base runs through the center of the disc to the outer third of the wing, beyond, a slightly irregular spot runs longitudinally nearly to external margin. The center of the costa is marked with silvery scales which continue as a spot obliquely outwardly to above the center of the irregular spot mentioned above. A small rounded silvery dot on the costa is followed by a large sub-apical costal spot enclosing a pale ochreous dot. A marginal silvery stripe runs from the apex to the middle of the outer margin. All the silvery markings are narrowly margined with dark brown scales. Fringes pale fuscous with a fine line of black scales internally.

Posterior wings very pale shining fuscous. Fringes white.

Expanse, 23 mil.

Habitat.—Colorado Territory (James Ridings).

Conchylis bimaculana, (Plate viii, fig. 78.)

Head, thorax and palpi pale testaceous, the latter touched with fuscous externally.

Anterior wings pale fawn color, with a large brownish-olivaceous kidney-shaped spot on the disc, and a large blackish-brown, semicircular spot in the outer third of the wing. Costa at base tinged with brownish olivaceous and numerous minute brown dots along internal margin. Fringes pale.

Posterior wings dark fuscous above, paler beneath

Expanse, 15 mil.

Habitat.—Texas (Belfrage).

Conchylis dorsimaculana. (Plate viii, fig. 79-)

Lozopera? angustana, Clemens, Proc. Ac. N. S. Phil., p. 354, 1860.

Palpi, head and thorax white. Anterior wings pale greenish-yellow, sometimes white. The costa streaked with greenish-brown, this shade being most prominent on and near the base, on the middle and just before the apex. A greenish brown fascia runs obliquely outwardly from internal margin near the base half across the wing; beyond, on the middle of internal margin a darker greenish-brown patch margined by dark brown scales. A dark brown dot near the middle of external

margin. Fringes whitish.

Posterior wings above and beneath very pale fuscous. Under surface of anterior pair darker fuscous.

Expanse, 14—15 mil.

Habitat.—Pennsylvania.

The name given this species by Dr. Clemens had already been used in this genus by European authors.

Conchylis promptana, n. s. (Plate viii, fig. 80.)

Palpi white above and inwardly, laterally fuscous. Head slightly tinged with pale yellow; thorax entirely yellow.

Anterior wings very pale straw color with bright greenish-yellow markings. An abbreviated oblique fascia from internal margin at base extends outwardly to above the middle; beyond on internal margin a triangular patch with minute marginal dark dots. An oblique fascia from the middle of costa runs outwardly nearly across the wing beyond the triangular dorsal patch enclosing a minute discal dark dot. A small rounded patch near costa before the apex, and a subterminal band. Fringes concolorous.

Posterior wings and fringes above and beneath shining white. Under surface of anterior pair dark fuscous; fringes pale.

Expanse, ♂ 13 mil., ♀ 20 mil.

Habitat.—Pennsylvania (Theo. Bunte), Texas (G. W. Belfrage).

This is a brighter colored species than the preceding, and agrees better in the character of markings and coloration with the European *C. smeathmanniana* except that the hind wings of the latter are always dark fuscous.

Conchylis angulatana, n. s. (Plate viii, fig. 81.)

Palpi, head and thorax pale yellow or whitish. Anterior wings yellowish with dark brown markings. An angulated brown fascia crosses the wing at basal third running obliquely outwardly nearly to the middle, thence inwardly to internal margin near the base. A broad abbreviated fascia runs from the middle of costa, gradually narrowing, to before internal angle; beneath it on internal margin a dark brown patch. A sub-apical costal spot and terminal shade dark brown tinged with olivaceous yellow.

Posterior wings and fringes above and beneath fuscous. Under surface of anterior pair fuscous, the markings of the upper surface reflected by darker shades.

Expanse, 13—15 mil.

Habitat.—Pennsylvania; West Virginia (Jas. Ridings).

Conchylis argentilimitana, n. s. (Plate viii, fig. 82.)

Palpi, head and thorax white. Anterior wings white, with a basal patch, central fascia, sub-apical costal spot and subterminal band dull golden-yellow margined with lines of shining silvery scales. The central fascia is bent slightly outwardly on the disc, and there are a few minute dark dots on costa most prominent on the basal half. Fringes yellow.

Posterior wings and fringes above and beneath pale fuscous. Under surface of anterior pair darker fuscous.

Expanse, 11 mil.

Habitat.—Pennsylvania.

Conchylis labeculana, n. s. (Plate viii, fig. 83.)

Palpi, head and thorax pale ashen-gray. Anterior wings shining pale ashen-gray or whitish, minutely speckled with dark scales, especially on the outer half. There is a basal patch, central fascia, subapical costal spot and terminal band, each composed of dull golden scales intermixed with fuscous. These markings are not limited by silvery scales as in the preceeding species, but the entire surface of the wings have a glossy appearance. Fringes shining golden-yellow.

Posterior wings dark fuscous above, paler beneath. Fringes whitish. Under surface of anterior pair dark fuscous with pale fringes.

Expanse, 14 mil.

Habitat.—Pennsylvania.

Conchylis lepidana. (Plate viii, fig. 84.)

Argyrolepis? *lepidana*, Clemens, Proc. Ac. N. S. Phil., p. 355, 1860.

Palpi pale yellow. Head and thorax ochreous. Anterior wings pale ochreous with a broad reddish fawn-colored central fascia running parallel with external margin. Outer third of the wing reddish fawn-color, separated from the central fascia by a pale ochreous line which becomes furcate below the middle of the wing enclosing a triangular reddish fawn-colored spot on internal margin. There are slight aggregations of dark brown scales along costa and on the margins of the central fascia, and a more prominent spot in the center of the outer third of the wing. Fringes pale ochreous.

Posterior wings fuscous, fringes paler. Under surface of both pairs fuscous, the anterior pair prominently tinged with ochreous.

Expanse, 13—15 mil.

Habitat.—Pennsylvania.

Conchylis interruptofasciata, n. s. (Plate viii, fig. 85.)

Palpi pale yellowish. Head and thorax ochreous. Anterior wings

with a large basal patch ochreous tinged with olivaceous, separated by a broad pale silvery band from two similarly colored patches situated respectively on costa and internal margin which represent the usual central fascia. The pale shade between and beyond the spots contains numerous dark brown scales; beyond, a broad subterminal band which is dark ochreous with a violaceous tinge. This band is narrowly limited externally by pale shining scales which are followed by a terminal ochreous shade. Fringes pale.

Posterior wings dark fuscous; fringes pale. Under surface of both pairs fuscous.

Expanse, 12—15 mil.

Habitat.—Pennsylvania (Theo. Bunte).

Conchylis bunteana, n. s. (Plate viii, fig. 86.)

Head, thorax and palpi white, the last tinged with ochreous laterally. Anterior wings broadly testaceous at base with a slight pinkish tinge. The central fascia narrow on costa, increasing in breadth to internal margin, consists of scattered aggregations of black and brownish scales. Outer third of the wing prominently tinged with pink, with scattered aggregations of blackish scales. A fascia of dull brown runs from costa at apical third to the middle of external margin beyond a large irregular patch of dull brown scales.

Posterior wings dark fuscous, fringes paler.

Expanse, 12 mil.

Habitat.—Pennsylvania.















